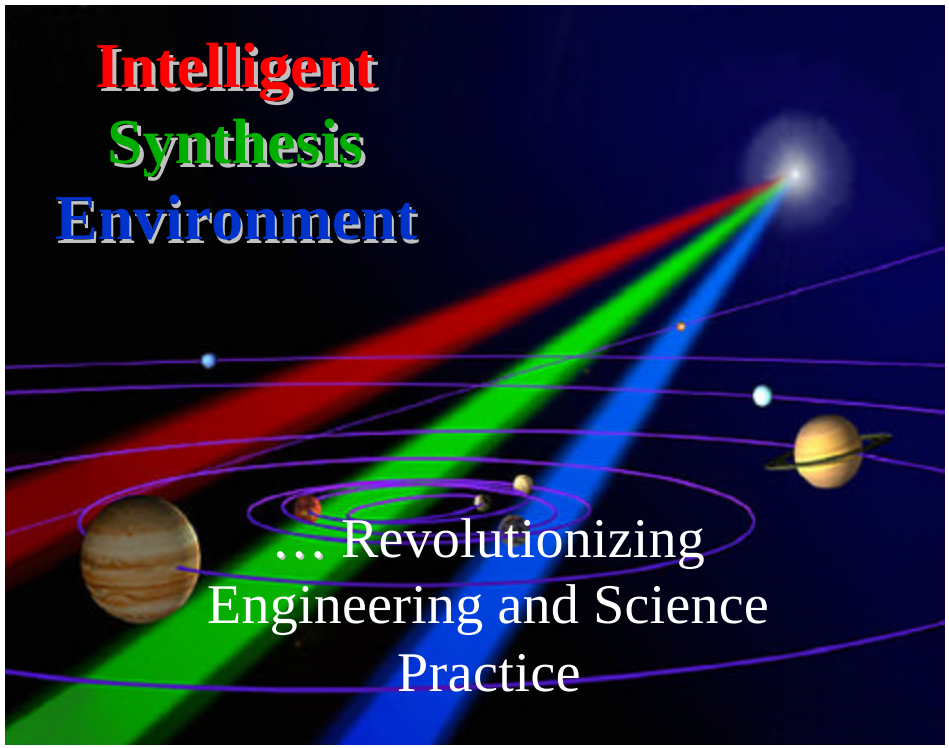
# ISE Industry/Academia Workshop
# October 28-29, 1999

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# Relationship Between ISE Elements

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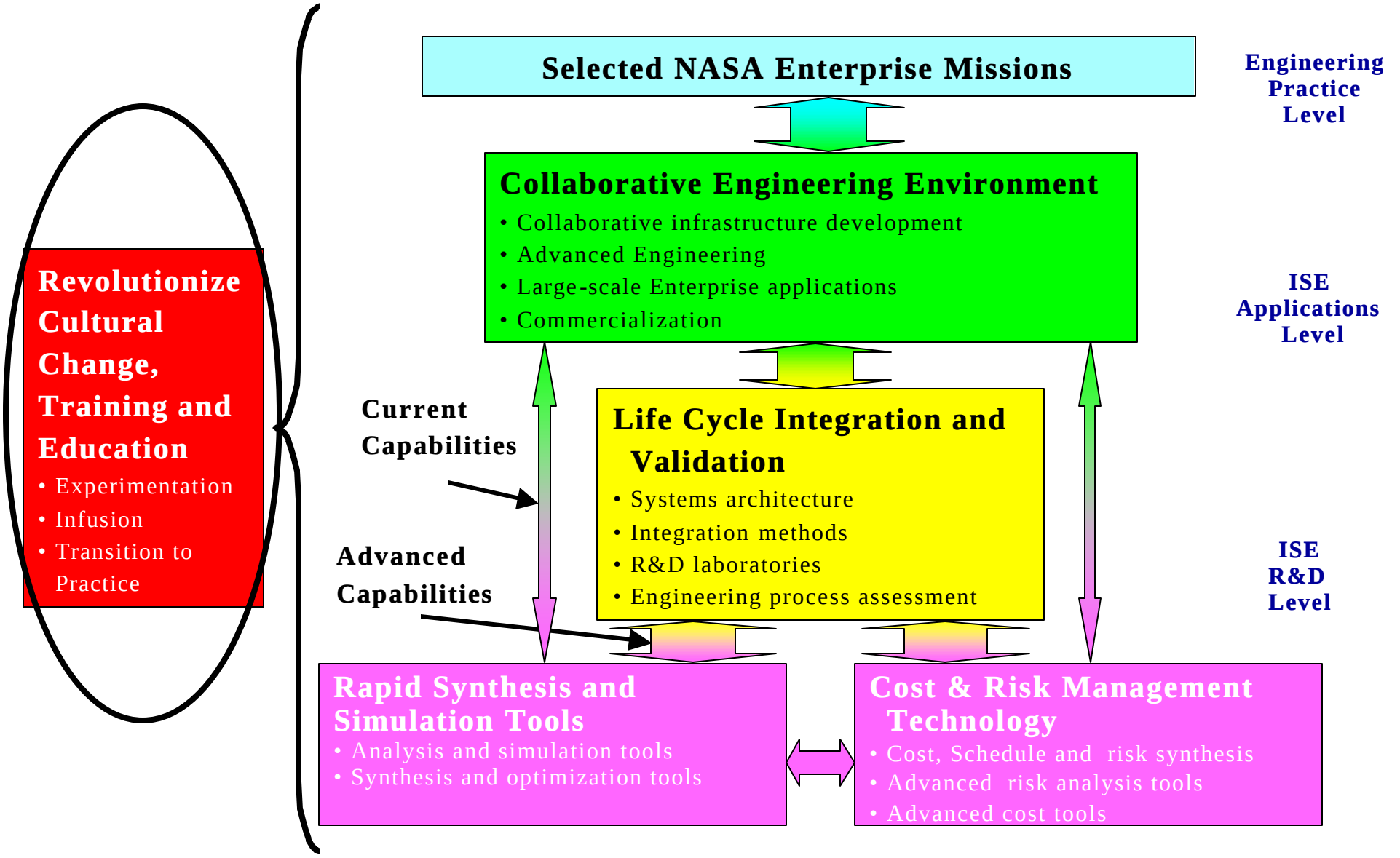



# Background/Problem Statement



## Most Change Initiatives Fail!!

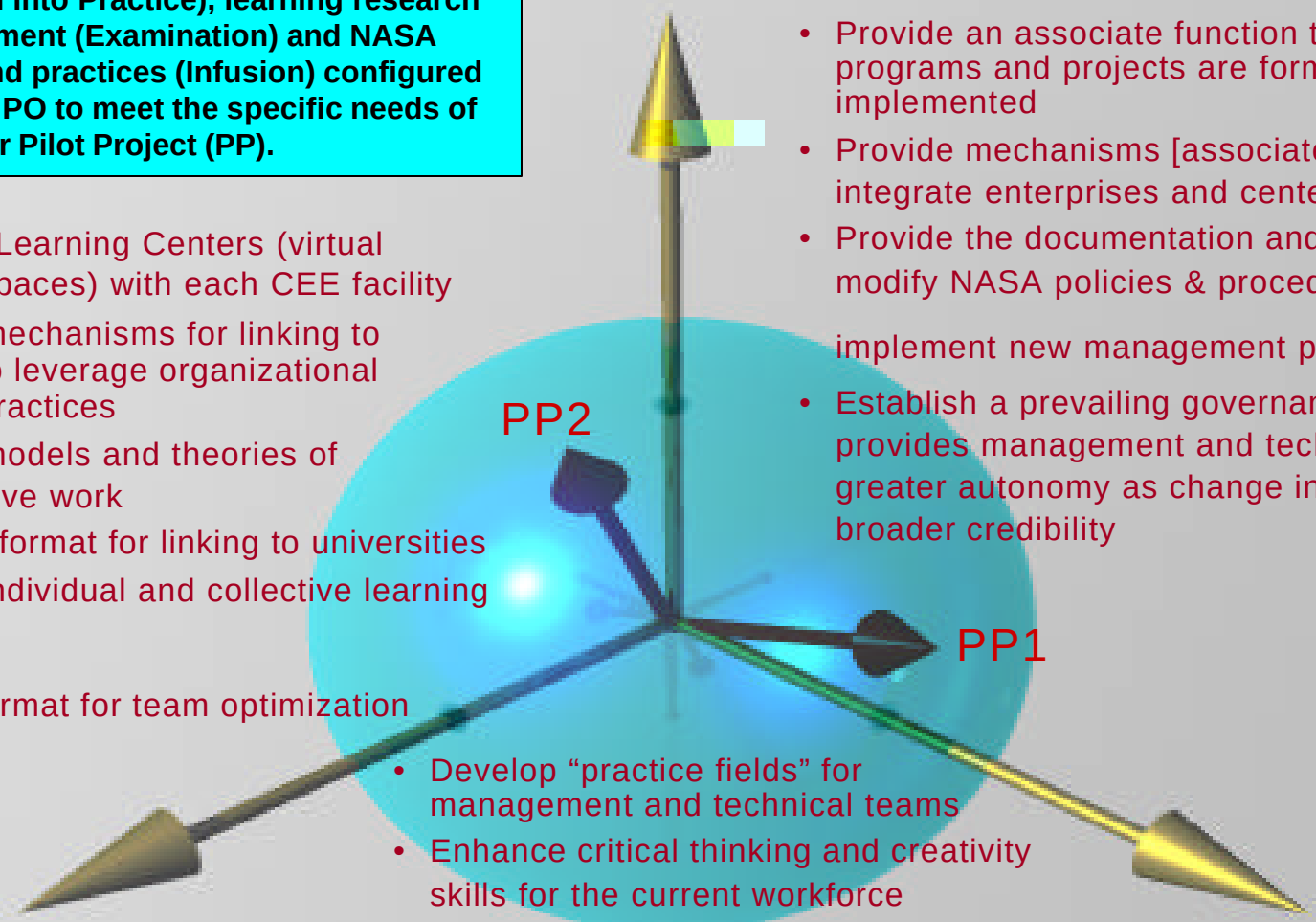
- Historically, organizations have not paid enough attention to the cultural, psychological, organizational and social aspects of implementing advanced technologies. (Advanced Engineering Environments Report, NRC 1999 )
- In a study of 100 top-management driven "corporate transformation" efforts, Harvard's John Kotter found that more than half did not survive the initial phases. (Harvard Business Review, Mar/Apr 1995)
- Out of the hundred of corporate TQM programs studied, about two-thirds grind to a halt because of their failure to produce hope-for-results. (Arthur D. Little and McKinsey Co study published in The Economist, Apr 1992)
- Information technologies rarely have consistent effects on the performance of groups and organizations (J. Grudin, 1988)

**VISION: Revolutionize NASA's Culture, Training, and Education to enable the infusion of the ISE Initiative's capabilities and accomplishments.**

# Objectives



**RCCTE is a custom blend of ISE technology (Transition Into Practice), learning research & development (Examination) and NASA policies and practices (Infusion) configured by the ISE PO to meet the specific needs of a particular Pilot Project (PP).**




- Provide an associate function to influence how programs and projects are formed and implemented
- Provide mechanisms [associate role bridging] to integrate enterprises and centers
- Provide the documentation and support to modify NASA policies & procedures that implement new management practices
- Establish a prevailing governance structure that provides management and technical teams greater autonomy as change initiatives gain broader credibility

- Establish Learning Centers (virtual learning spaces) with each CEE facility
- Develop mechanisms for linking to industry to leverage organizational learning practices
- Develop models and theories of collaborative work
- Provide a format for linking to universities
- Develop individual and collective learning programs
- Provide format for team optimization

- Develop “practice fields” for management and technical teams
- Enhance critical thinking and creativity skills for the current workforce
- Integrate CEE capabilities into NASA training programs.

# Implementation Approach
# "People, Policies and Processes"

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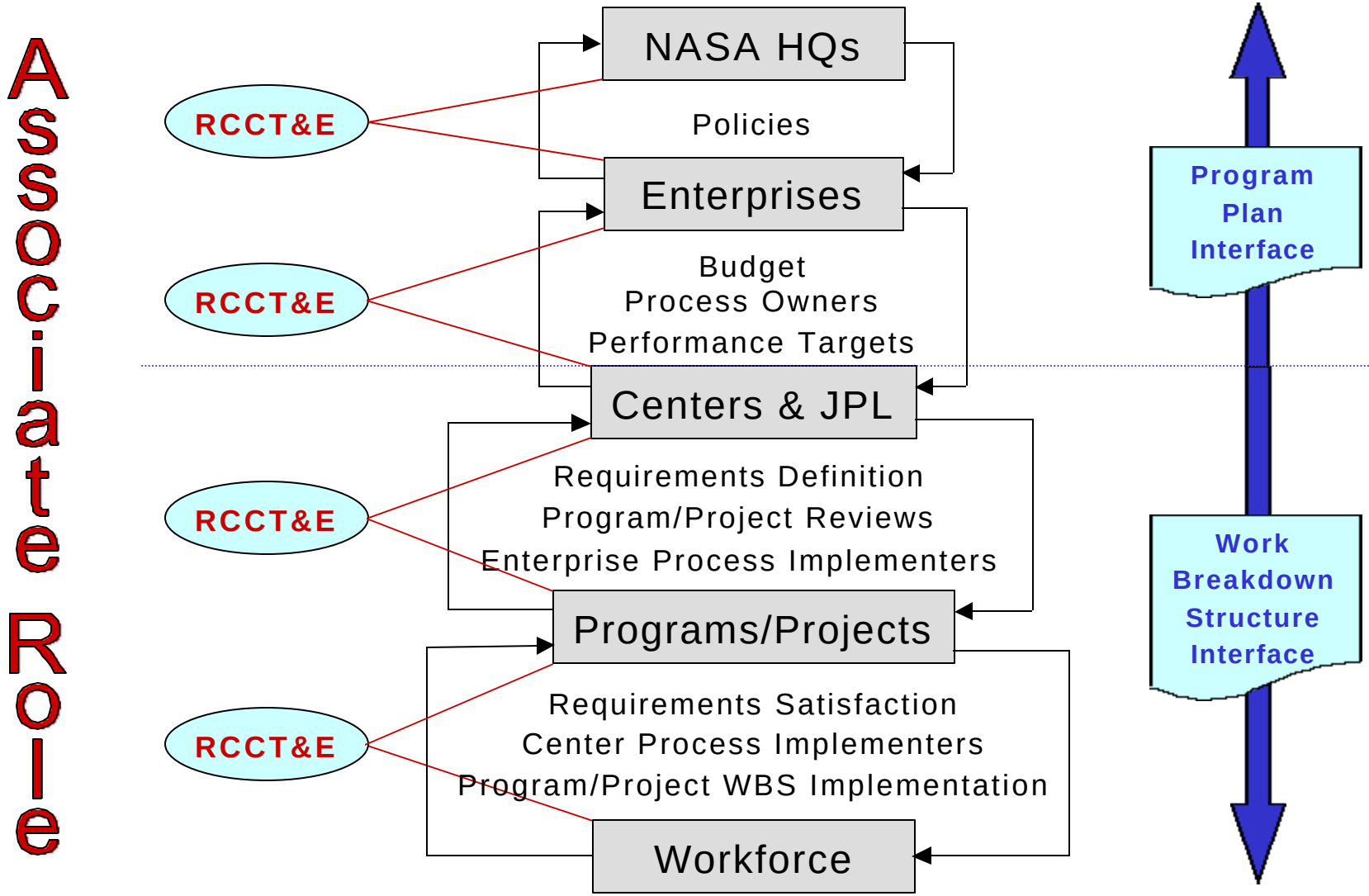

# 5 Year Targets

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| | |
|---|---|
| **Deliverable 1:**<br>Distributed, collaborative, hyper-active learning systems (for technical and management training) with state-of-the-technology multimedia and virtual reality capabilities. Implementation accomplished via practical experimentation and testing. | **Key Activity 1:**<br>Establish University Collaborative/Distributed Learning Consortium.<br><br>**Key Activity 2:**<br>Provide the feedback mechanisms to update and improve ISE related advanced learning systems based on research conducted by ISE academia partners.<br><br>**Key Activity 3:**<br>Coordinate with university consortia to develop and put into practice engineering curriculums that implement ISE capabilities and develop distributed, collaborative learning systems. |
| **Deliverable 2:**<br>Timely and effective learning programs coordinated with the other ISE elements to ensure NASA management can effectively use the advanced engineering and science capabilities developed by the ISE Initiative. | **Key Activity 1:**<br>Develop models and theories of collaborative work to be tested and validated in the "Learning Center" environment.<br><br>**Key Activity 2:**<br>Develop individual and collective learning processes to allow NASA's workforce to understand the complexity and interdependent issues associated with collaborative engineering from geographically displaced locations.<br><br>**Key Activity 3:**<br>Design and develop ISE Learning Centers at each NASA center to serve as practice fields for management and technical teams.<br><br>**Key Activity 4:**<br>Reconstruct existing sequentially oriented NASA training programs to non-linear, hyper-learning environments with flexible delivery systems. |

# 5 Year Targets (cont)



| | |
|---|---|
| **Deliverable 3:**<br>Guidelines, policies and processes that dissolve the rigid cultural boundaries between NASA's diverse engineering, science and management teams. | **Key Activity 1:**<br>Design an effective cross-organizational learning infrastructure that augments the natural workings of informal "communities of practice" already in existence within NASA.<br>**Key Activity 2:**<br>Acquire the appropriate background information and support the preparation of documentation to modify NASA policies & procedures that contribute to the elimination of cross-organizational barriers.<br>**Key Activity 3:**<br>Implement (in an associate role) reinforcing policies, guidelines and practices to sustain cultural change. |
| **Deliverable 4:**<br>Implement new and creative approaches for supporting the work and interaction of geographically displaced "virtual" teams. | **Key Activity 1:**<br>Establish a prevailing governance structure that enables the development of cross-functional, cross-boundary teams (within ISE Initiative).<br>**Key Activity 2:**<br>Design and implement an ISE-wide strategy for team learning, i.e., strategies that enhance a team's capacity to think and act in new synergistic ways.<br>**Key Activity 3:**<br>Develop a simulation capability for diverse team (both management and technical) activities and processes (including information flow, generation and prioritizing alternative mission scenarios and decision making).<br>**Key Activity 4:**<br>Advance the implementation of self-directed, distributed, collaborative teams. |

# Industry/Academia Relationships/Interfaces

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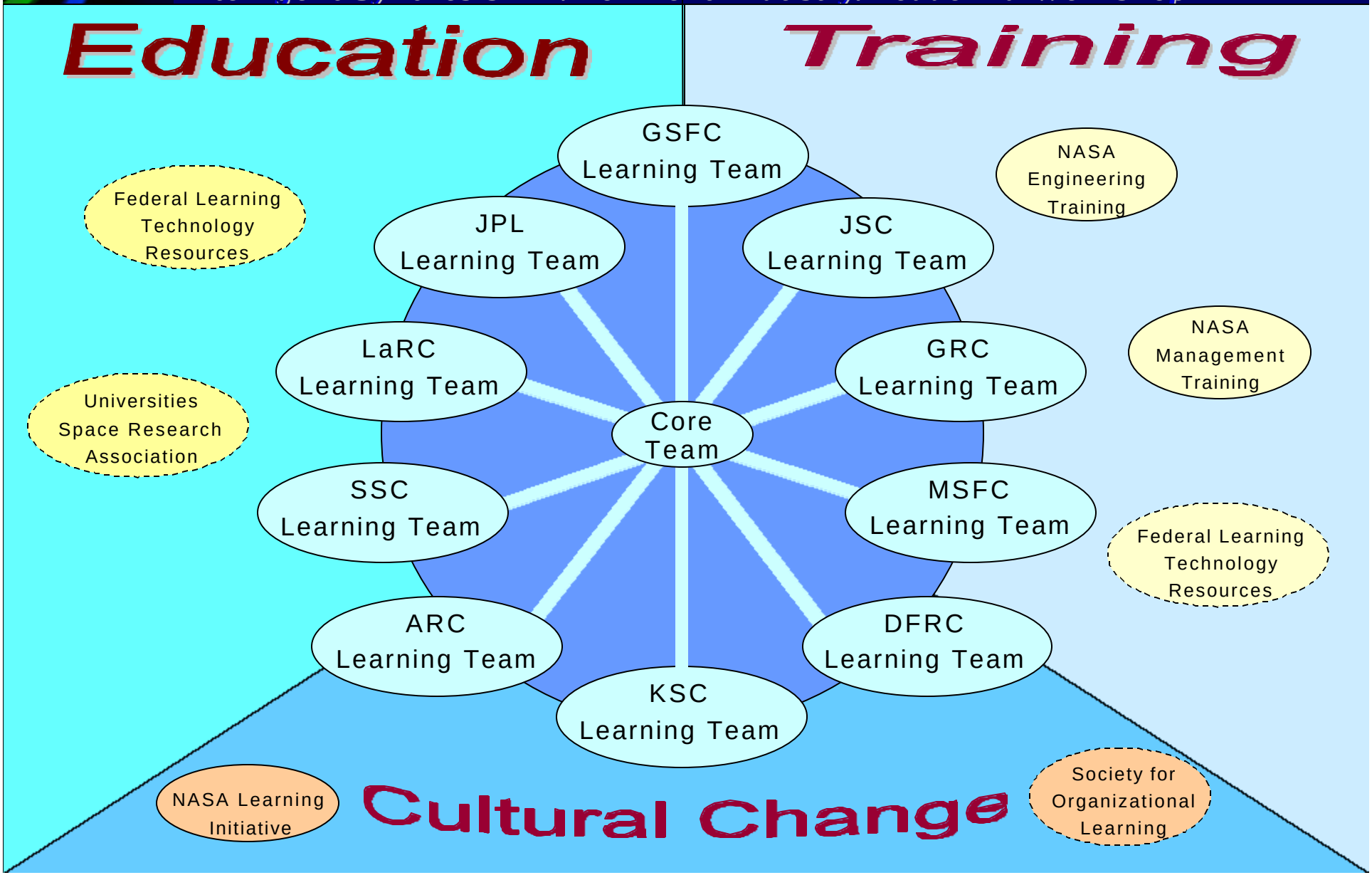


# Technology Needs



- **Technology that Supports the Development of Hyper-Active Learning Systems (learning that is unconstrained by geographic location, time or pace of the learner)**
- **Knowledge Management Tools that Support Collaborative Engineering**
- **Simulation Capability of Human Processes Associated with Program/Project Management**
- **Technology that Supports and Advances Distributed, High Performance Teaming**
- **Advanced Training Techniques**
- **Evolve Advanced Learning Systems to the Desktop: Prototype Learning Lab > Learning Centers > Desktop**

# RCCTE Organizational Structure

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**Intelligent Synthesis Environment Initiative 1.0**

**Revolutionize Cultural Change, Training and Education (RCCTE) 2.5***
**Randall Seftas/GSFC - Manager**
**Pat Simpkins/KSC - Dep. Manager**

**Examination 2.5.1**
**D. Smith / JPL - Lead**

**Infusion 2.5.2**
**L. Dyer/JSC - Lead**

**Transition Into Practice 2.5.3**
**P. Simpkins/KSC - Lead**

**Revolutionize Cultural Change, Training & Education - Core Team**

| | |
|---|---|
| Randy Seftas/GSFC-Mngr. | Pat Simpkins/KSC- Dep. Mngr. |
| Larry Dyer/JSC | Dave Smith/JPL |
| Vicki Regenie/DFRC | Ed Prior/LaRC |
| Glen Jones/MSFC | Leon Collins/GRC |


# Summary



- **RCCTE is just beginning the long road to enabling NASA to change to a more collaborative culture**
- **Industry and academia agree with the extreme need for collaborative ways of advancing technology**
- **RCCTE is committed to working in partnership with industry and academia in the areas of organizational learning and development**
- **RCCTE desires and needs the support of the Agency, enterprises, and associated Centers in order to enhance our collaborative culture using the technologies of the ISE program.**